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REVIEWS

USE OF KINETIC INHIBITORS OF GAS HYDRATE FORMATION IN OIL AND GAS PRODUCTION PROCESSES: CURRENT STATE AND PROSPECTS OF DEVELOPMENT

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Kinetic inhibitors of gas hydrate formation in oil and gas production processes are reviewed briefly. A general description of the mechanism of inhibitor action is given. The structural distinctions of both synthetic polymeric inhibitors and natural inhibitors are indicated. Prospects of development of new kinetic inhibitors of hydrate formation are shown.
Keywords: *gas hydrates, kinetic inhibitors of hydrate formation, polyamides, antifreeze proteins.*

Gas hydrates are inclusion compounds in which small molecules of gas (for example, methane, ethane, carbon dioxide) are located inside the framework of hydrogen-bonded water molecules [1]. In oil and gas production, the formation of gas hydrates is an extremely undesirable phenomenon, because due to high pressure and low temperature, natural gas hydrates can accumulate inside pipelines [2]. Gas hydrates forming on contact with oil, natural gas and formation fluid make oil flow through the pipeline difficult. As a result, oil pressure at the outlet from the oil pipeline may drop, or a complete blockage may occur. Every year a lot of money is spent in the oil and gas industry to solve the problem of hydrate formation in pipelines [1]. In addition to the fundamental tasks, the study of the processes of formation of natural gas hydrates is necessary to reduce the cost of producing hydrocarbons and to develop technologies for extracting methane from natural gas hydrate deposits.

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